Hydrologic Forecast for Augusta/Elk Creek

CONDITIONS 05/03/2020

Lewis & Clark County Water Quality Protection District

SUMMARY
Elk Creek is a non-gauged stream, therefore USGS gauging station 0608220 (Sun River below Willow Cr) is used as a surrogate to evaluate the timing of spring runoff and can be used to track rising river stage in the area.

Streamflows have risen in the past week from warmer weather contributing to a melting snowpack. Snow-water-equivalent (SWE) at mid elevations (~6,000') is right at normal conditions for this time of year, suggesting significant melting of mid and upper elevation snowpacks has yet to begin. Temperatures are projected to be at or above freezing at lower elevations which will accelerate runoff over the next two weeks. It is possible that segments of Elk Creek may experience unpredictable response to spring runoff due to infrastructure damage and/or channel disruptions from the events of 2018 and 2019.

A disturbance bringing moisture to the area is projected for Wednesday and Thursday, and could result in precipitation-driven high flows for the area. Residents should keep track of weather patterns for increasing temperature and precipitation events which could change streamflows rapidly. With snowpack right at average levels for this time of year, intense and sustained snow-melt runoff is not expected, however precipitation events can contribute to flooding especially during periods of spring snowmelt.

The following data and information is used to evaluate hydrologic conditions in the Elk Creek drainage. Hydrologic response of Elk Creek is predominantly a result of three factors.

1. Surrogate **streamflow** measured at the Sun River below Willow Creek USGS Stream Gauging Station west of Augusta
   https://waterdata.usgs.gov/monitoring-location/06082200
2. **Snowpack** snow water equivalent (SWE) at the Wood Creek SNOTEL Station west of Augusta
   https://www.nwrfc.noaa.gov/snow/snowplot.cgi?WODM8
3. Short-term Augusta 5-day weather (**precipitation and temperature)** projection from the National Weather Service
   https://forecast.weather.gov/MapClick.php?lat=47.4927&lon=-112.3938#.XpooZUZKjGg

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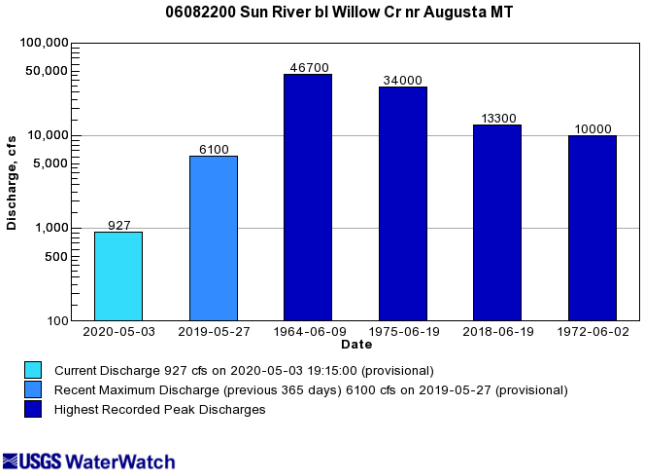
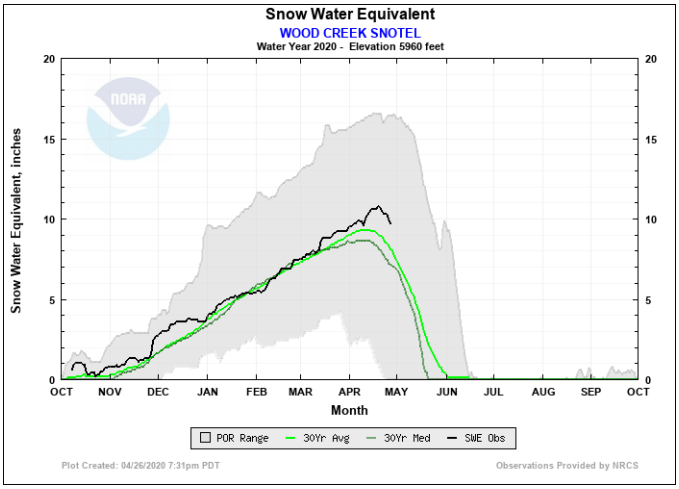
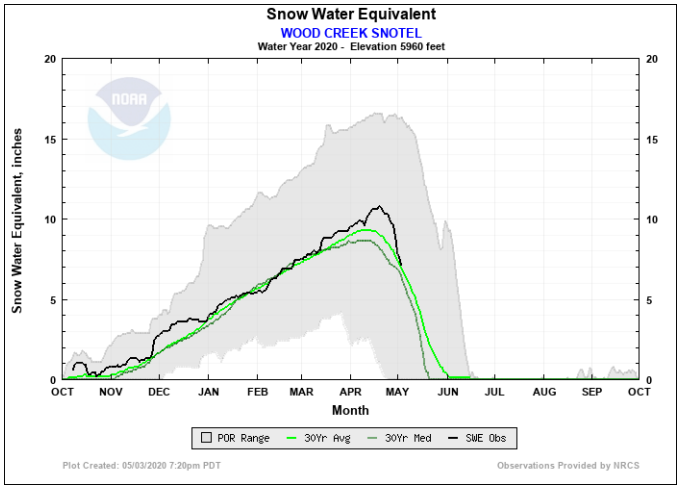
1. **STREAMFLOW**
   Streamflow on Sunday 05/03 was recorded at 927 CFS
   Median flow on 05/03 is 282 CFS
   On June 19th, 2018 streamflow peaked at 13,300 CFS
   On May 27th, 2019 streamflow peaked at 6,100 CFS



2. **SNOWPACK (SWE)**
   SWE at Wood Creek is at 7.0" which is right at the 30-year average. Plots below show loss of Wood Creek snowpack (**black** line) in the past week.



SWE April 26



SWE May 3

3. **WEATHER**
   Monday through next Thursday...Normal seasonal temperatures are expected throughout the week with a projected disturbance bringing moisture to the area Wednesday and Thursday. Chances of rain-on-snow events are possible Wednesday and Thursday, and may result in high water conditions.